**PATENT****IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Applicants: Reeves, et al. Examiner: Unassigned
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For: SYSTEM, METHOD AND APPARATUS
FOR SMALL PULMONARY NODULE
COMPUTER AIDED DIAGNOSIS FROM
COMPUTED TOMOGRAPHY SCANS

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INFORMATION DISCLOSURE STATEMENT

Sir:

In order to fulfill the requirements of candor and good faith set forth in 37 C.F.R.

§1.56, Applicants submit herewith the following Information Disclosure Statement in
accordance with the provisions of 37 C.F.R. §1.97 and §1.98.

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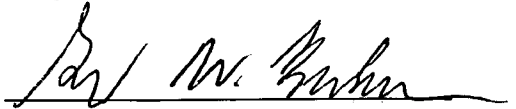
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The above-referenced documents are listed on PTO Form 1449. We have enclosed the cited documents to facilitate reference to them.

Applicants are not aware of any other references to be identified at this time. If the Examiner has any questions or comments relating to the present application, he or she is respectfully invited to contact Applicants' attorney at the telephone number set forth below.

Respectfully submitted,



Gregory W. Bachmann
Registration No.: 41,593
Attorney for Applicant(s)

HOFFMANN & BARON, LLP
6900 Jericho Turnpike
Syosset, New York 11791
(516) 822-3550
GWB/dlb
180800



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APPLICANT
Reeves et al.

CONFIRMATION NO.
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FILING DATE
October 17, 2003

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U.S. PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	NAME	CLASS	SUB CLASS	FILING DATE IF APPROPRIATE
/A.W./	6,205,350	3/20/01	Lorenz et al.			
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FOREIGN PATENT DOCUMENTS

EXAMINER INITIAL	DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUB CLASS	TRANSLATION	
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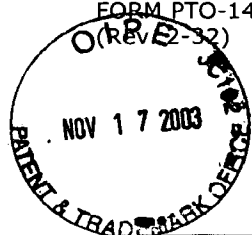
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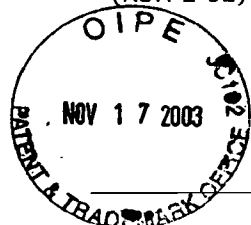
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APPLICANT
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INFORMATION DISCLOSURE
STATEMENT BY APPLICANT

APPLICANT
Reeves et al.

CONFIRMATION NO.
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/A.W./

Author: R. S. Fontana, D. R. Sanderson, L. B. Woolner, W. F. Taylor, W. E. Miller, J. R. Muhm, P. E. Bernatz, W. S. Payne, P. C. Pairolero, and E. J. Bergstralh; **Title:** "Screening for lung cancer"; A critique of the Mayo Lung Project. *Cancer*, 67(4 (suppl.)):1155-1164; **Date of Publication:** Feb. 15 1991; **Place of Publication:** U.S.

Author: A. Van Gelder and J. Wilhelms; **Title:** "Topological considerations in isosurface generation"; *ACM Transactions on Graphics*, 13(4):337-375; **Date of Publication:** October 1994; **Place of Publication:** U.S.

Author: M. L. Giger, K. T. Bae, and H. MacMahon; **Title:** "Computerized detection of pulmonary nodules in computed tomography images"; *Investigative Radiology*, 29(4):459-465; **Date of Publication:** April 1994; **Place of Publication:** U.S.

Author: M. L. Giger, K. Doi, and H. MacMahon; **Title:** "Image feature analysis and computer-aided diagnosis in digital radiography. 3. Automated detection of nodules in peripheral lung fields"; *Medical Physics*, 15(2):158-166; **Date of Publication:** Mar.-Apr. 1988; **Place of Publication:** U.S.

Author: R. C. Gonzales and R. E. Woods; *Digital Image Processing*. Addison-Wesley, Reading, MA; **Date of Publication:** 1992; **Place of Publication:** U.S.

Author: J. W. Green and C. C. Lushbaugh; **Title:** "Histopathological study of the mode of inhibition of cellular proliferation by urethane"; *Cancer Research*, 9:199-209; **Date of Publication:** 1949; **Place of Publication:** U.S.

Author: Gurney, Jud W.; **Title:** "Determining the likelihood of malignancy in solitary pulmonary nodules with Bayesian analysis"; Part 1. Theory. *Radiology*, 186(2):405-413; **Date of Publication:** February 1993; **Place of Publication:** U.S.

Author: J. A. Hanley and B. J. McNeil; **Title:** "The meaning and use of the area under a receiver operating characteristic (ROC) curve"; *Radiology*, 143(1):29-36; **Date of Publication:** April 1982; **Place of Publication:** Canada.

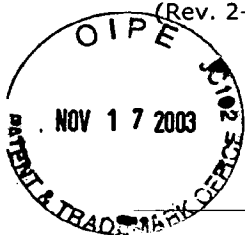
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/A.W./		Author: C.I. Henschke, D.I. McCauley, D.F. Yankelevitz, D. P. Naidich, G. McGuinness, O. S. Miettinen, D. M. Libby, M. W. Pasmantier, J. Koizumi, N. K. Altorki, and J. P. Smith; Title: "Early Lung Cancer Action Project: overall design and findings from baseline screening;" <i>Lancet</i> , 354(9173):99-105; Date of Publication: July 1999; Place of Publication: U.S.
		Author: C. J. Herold, A. A. Bankier, and D. Fleischmann; Title: "Lung metastases"; <i>European Radiology</i> , 6(5):596-606; Date of Publication: 1996; Place of Publication: Austria.
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		Author: G. N. Hounsfield; Title: "Computed medical imaging"; Nobel lecture, December 8, 1979. <i>Journal of Computer Assisted Tomography</i> , 4(5):665-674; Date of Publication: October 1980; Place of Publication: England.
		Author: Z. Huo, M. L. Giger, C. J. Vyborny, U. Bick, P. Lu, D. E. Wolverton, and R. A. Schmidt; Title: "Analysis of spiculation in the computerized classification of mammographic masses"; <i>Medical Physics</i> , 22(10):1569-1579; Date of Publication: October 1995; Place of Publication: U.S.
		Author: Z. Huo, M. L. Giger, C. J. Vyborny, D. E. Wolverton, R. A. Schmidt, and K. Doi; Title: "Automated computerized classification of malignant and benign masses on digitized mammograms"; <i>Academic Radiology</i> , 5(3):155-168; Date of Publication: March 1998; Place of Publication: U.S.
		Author: S. Itoh, M. Ikeda, T. Isomura, T. Endo, K. Yamakawa, K. Itoh, S. Naganawa, K. Maruyama, and T. Ishigaki; Title: "Screening helical CT for mass screening of lung cancer: application of low-dose and single-breath-hold scanning"; <i>Radiation Medicine</i> , 16(2):75-83; Date of Publication: Mar.-Apr. 1998; Place of Publication: Japan.
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/A.W./			Author: L. R. Kaiser and J. B. Shrager; Title: "Video-assisted thoracic surgery: the current state of the art"; <i>AJR American Journal of Roentgenology</i> , 99(2):246-250; Date of Publication: February 1996; Place of Publication: U.S.
			Author: W. A. Kalender; Title: "Technical foundations of spiral CT"; <i>Seminars in Ultrasound, CT, and MRI</i> , 15(2):81-89; Date of Publication: April 1994; Place of Publication: Germany.
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			Author: J. H. Kim, J. G. Im, M. C. Han, B. G. Min, and C. W. Lee; Title: "Improved visualization of simulated nodules by adaptive enhancement of digital chest radiography"; <i>Academic Radiology</i> , 1(2):93-99; Date of Publication: October 1994; Place of Publication: South Korea.
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/A.W./		<p>Author: S. H. Landis, T. Murray, S. Bolden, and P. A. Wingo; Title: "Cancer statistics, 1999"; <i>CA: A Cancer Journal for Clinicians</i>, 49(1):8-31; Date of Publication: Jan.-Feb. 1999; Place of Publication: U.S.</p>
		<p>Author: G. A. Lillington; Title: "Management of solitary pulmonary nodules"; <i>Postgraduate Medicine</i>, 101(3):145-150; Date of Publication: March 1997; Place of Publication: U.S.</p>
		<p>Author: W. E. Lorensen and H. E. Cline; Title: "Marching cubes: A high resolution 3D surface construction algorithm"; <i>Computer Graphics</i>, 21(4):163-169; Date of Publication: July 1987; Place of Publication: U.S.</p>
		<p>Author: F. Mao, W. Qian, J. Gaviria, and L. P. Clarke; Title: "Fragmentary window filtering for multiscale lung nodule detection: Preliminary study"; <i>Academic Radiology</i>, 5(4):306-311; Date of Publication: April 1998; Place of Publication: U.S.</p>
		<p>Author: T. Matsumoto, H. Yoshimura, K. Doi, M. L. Giger, A. Kano, H. MacMahon, K. Abe, and S. M. Montner; Title: "Image feature analysis of false-positive diagnoses produced by automated detection of lung nodules"; <i>Investigative Radiology</i>, 27(8):587-597; Date of Publication: August 1992; Place of Publication: U.S.</p>
		<p>Author: M. F. McNitt-Gray, E. M. Hart, N. Wyckoff, J. W. Sayre, J. G. Goldin, and D. R. Aberle; Title: "A pattern classification approach to characterizing solitary pulmonary nodules imaged on high resolution CT: Preliminary results"; <i>Medical Physics</i>, 26(6):880-888; Date of Publication: June 1999; Place of Publication: U.S.</p>
		<p>Author: M.R. Melamed, B. J. Flehinger, M. B. Zaman, R. T. Heelan, W. A. Perchick, and N. Martini; Title: "Screening for early lung cancer. Results of the Memorial Sloan-Kettering study in New York"; <i>Chest</i>, 86(1):44-53; Date of Publication: July 1984; Place of Publication: U.S.</p>
		<p>Author: S. Mitruka, R. J. Landreneau, M. J. Mack, L. S. Fetterman, J. Gammie, S. Bartley, S. R. Sutherland, C. M. Bowers, R. J. Keenan RJ, P. F. Ferson, and R. J. Weyant; Title: "Diagnosing the indeterminate pulmonary nodule: percutaneous biopsy versus thoracoscopy"; <i>Surgery</i>, 118(4):676-684; Date of Publication: October 1995; Place of Publication: U.S.</p>

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		<p>Author: H. Nathan; Title: "Management of solitary pulmonary nodules. An organized approach based on growth rate and statistics"; <i>JAMA</i>, 227(10):1141-1144; Date of Publication: March 1974; Place of Publication: U.S.</p>
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		<p>Author: J. Peiss, M. Verlande, W. Ameling, and R. W. Guenther; Title: "Classification of lung tumors on chest radiographs by fractal texture analysis"; <i>Investigative Radiology</i>, 31(10):625-629; Date of Publication: October 1996; Place of Publication: Germany.</p>
		<p>Author: M. G. Penedo, M. J. Carreira, A. Mosquera, and D. Cabello; Title: "Computer-aided diagnosis: A neural-network-based approach to lung nodule detection"; <i>IEEE Transactions on Medical Imaging</i>, 17(6):872-880; Date of Publication: December 1998; Place of Publication: Spain.</p>
		<p>Author: R. J. Prokop and A. P. Reeves; Title: "A survey of moment-based techniques for unoccluded object representation and recognition"; <i>CVGIP: Graphical Models and Image Processing</i>, 54(5):438-360; Date of Publication: September 1992; Place of Publication: U.S.</p>
		<p>Author: R. D. Pugatch; Title: "Radiologic evaluation in chest malignancies. A review of imaging modalities"; <i>Chest</i>, 107(6 (suppl.)):294S-297S; Date of Publication: June 1995; Place of Publication: U.S.</p>
↓		<p>Author: A. P. Reeves, W. J. Kostis, C. I. Henschke, B. Zhao, and D. F. Yankelevitz; Title: "Three-dimensional feature characterization of small pulmonary nodules from helical CT images"; <i>Radiology</i>, 209P:163; Date of Publication: November 1998; Place of Publication: U.S.</p>

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Author: A. P. Reeves, W. J. Kostis, D. F. Yankelevitz, and C. I. Henschke; **Title:** "Three-dimensional shape characterization of solitary pulmonary nodules from helical CT scans"; In H. U. Lemke, M. W. Vannier, K. Inamura, and A. G. Farman, editors, *Proceedings of Computer Assisted Radiology and Surgery (CARS '99)*, pages 83-87. Elsevier Science; **Date of Publication:** June 1999; **Place of Publication:** U.S.

Author: A. P. Reeves, R. J. Prokop, S. E. Andrews, and F. P. Kuhl; **Title:** "Three-dimensional shape analysis using moments and Fourier descriptors"; *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 10(6):937-943; **Date of Publication:** November 1988; **Place of Publication:** U.S.

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Author: J. Remy, M. Remy-Jardin, F. Giraud, and J. Wannebroucq; **Title:** "Spiral volumetric scanning and its applications in thoracic pathology"; *Rev Mal Respir*, 11(1):13-27; **Date of Publication:** 1994; **Place of Publication:**

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Author: K. V. Rolston, S. Rodriguez, M. Dholakia, E. Whimbey E, and I. Raad; **Title:** "Pulmonary infections mimicking cancer: a retrospective; three-year review"; *Support Care Cancer*, 5(2):90-93; **Date of Publication:** March 1997; **Place of Publication:** U.S.

Author: S. Sanada, K. Doi, and H. MacMahon; **Title:** "Image feature analysis and computer-aided diagnosis in digital radiography: automated delineation of posterior ribs in chest images"; *Medical Physics*, 18(5):964-971; **Date of Publication:** Sep.-Oct. 1991; **Place of Publication:** U.S.

Author: S. Sasaoka, H. Takabatake, M. Mori, H. Natori, and S. Abe; **Title:** "Digital analysis of pulmonary nodules-potential usefulness of computer-aided diagnosis for differentiation of benign from malignant nodules"; *Nippon Kyobu Shikkan Gakkai Zasshi*, 33(5):489-496; (With English Abstract) **Date of Publication:** May 1995; **Place of Publication:**

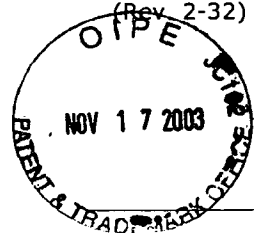
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/A.W./			Author: M. D. Seemann, A. Staebler, T. Beinert, H. Dienemann, B. Obst, M. Matzko, C. Pistitsch, and M. F. Reiser; Title: "Usefulness of morphological characteristics for the differentiation of benign from malignant solitary pulmonary lesions using HRCT;" <i>European Radiology</i> , 9(3):409-417; Date of Publication: 1999; Place of Publication: Germany.
			Author: R. Shah, S. Sabanathan, J. Richardson, A. J. Mearns, and C. Goulden; Title: "Results of surgical treatment of stage I and II lung cancer"; <i>Journal of Cardiovascular Surgery</i> , 37(2):169-172; Date of Publication: April 1996; Place of Publication: United Kingdom.
			Author: R. H. Sherrier, C. Chiles, W. E. Wilkinson, G. A. Johnson, and C. E. Ravin; Title: "Effects of image processing on nodule detection rates in digitized chest radiographs: ROC study of observer performance"; <i>Radiology</i> , 166(2):447-450; Date of Publication: February 1998; Place of Publication: U.S.
			Author: S. Sone, S. Takashima, F. Li, Z. Yang, T. Honda, Y. Maruyama, M. Hasegawa, T. Yamanda, K. Kubo, K. Hanamura, and K. Asakura; Title: "Mass screening for lung cancer with mobile spiral computed tomography scanner"; <i>Lancet</i> , 351(9111):1242-1245; Date of Publication: April 1998; Place of Publication: Japan.
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			Author: S. J. Swensen, J. R. Jett, W. S. Payne, R. W. Viggiano, P. C. Pairolero, and V. F. Trastek; Title: "An integrated approach to evaluation of the solitary pulmonary nodule"; <i>Mayo Clinic Proceedings</i> , 65(2):173-186; Date of Publication: February 1990; Place of Publication: U.S.
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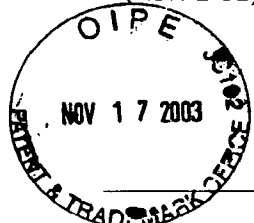
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			<p>Author: J. D. Urschel; Title: "Surgical treatment of peripheral small cell lung cancer"; <i>Chest Surg Clin N Am</i>, 7(1):95-103; Date of Publication: February 1997; Place of Publication: U.S.</p>
			<p>Author: K. Usuda, Y. Saito, M. Sagawa, M. Sato, K. Kanma, S. Takahashi, C. Endo, Y. Chen, A. Sakurada, and S. Fujimura; Title: "Tumor doubling time and prognostic assessment of patients with primary lung cancer"; <i>Cancer</i>, 74(8):2239-2244; Date of Publication: October 1994; Place of Publication: Japan.</p>
			<p>Author: N. F. Vittitoe, J. A. Baker, and C. E. Floyd; Title: "Fractal texture analysis in computer-aided diagnosis of solitary pulmonary nodules"; <i>Academic Radiology</i>, 4(2):96-101; Date of Publication: February 1997; Place of Publication: U.S.</p>
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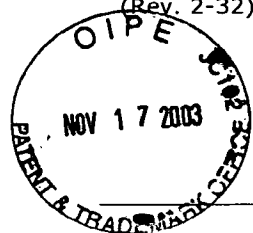
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SERIAL NO.
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APPLICANT
Reeves et al.

CONFIRMATION NO.
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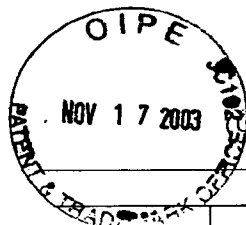
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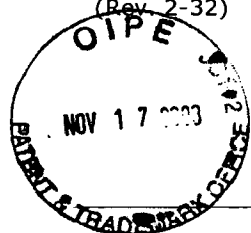
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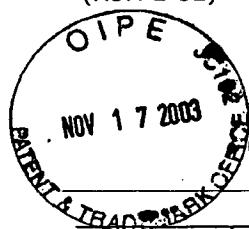
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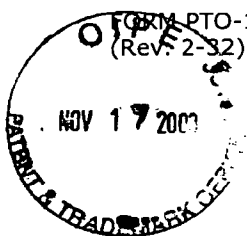
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